

fluids, gas, or air in any area subject to engine fire conditions must be at least fire resistant, except that flammable fluid tanks and supports which are part of and attached to the engine must be fireproof or be enclosed by a fireproof shield unless damage by fire to any non-fireproof part will not cause leakage or spillage of flammable fluid. Components must be shielded or located so as to safeguard against the ignition of leaking flammable fluid. Flexible hose assemblies (hose and end fittings) must be shown to be suitable for the particular application. An integral oil sump of less than 25-quart capacity on a reciprocating engine need not be fireproof nor be enclosed by a fireproof shield.

(b) Paragraph (a) of this section does not apply to—

(1) Lines, fittings, and components which are already approved as part of a type certificated engine; and

(2) Vent and drain lines, and their fittings, whose failure will not result in, or add to, a fire hazard.

[Doc. No. 4080, 29 FR 17955, Dec. 18, 1964, as amended by Amdt. 23-5, 32 FR 6912, May 5, 1967; Amdt. 23-15, 39 FR 35460, Oct. 1, 1974; Amdt. 23-29, 49 FR 6847, Feb. 23, 1984; Amdt. 23-51, 61 FR 5138, Feb. 9, 1996]

**§ 23.1189 Shutoff means.**

(a) For each multiengine airplane the following apply:

(1) Each engine installation must have means to shut off or otherwise prevent hazardous quantities of fuel, oil, deicing fluid, and other flammable liquids from flowing into, within, or through any engine compartment, except in lines, fittings, and components forming an integral part of an engine.

(2) The closing of the fuel shutoff valve for any engine may not make any fuel unavailable to the remaining engines that would be available to those engines with that valve open.

(3) Operation of any shutoff means may not interfere with the later emergency operation of other equipment such as propeller feathering devices.

(4) Each shutoff must be outside of the engine compartment unless an equal degree of safety is provided with the shutoff inside the compartment.

(5) Not more than one quart of flammable fluid may escape into the engine

compartment after engine shutoff. For those installations where the flammable fluid that escapes after shutdown cannot be limited to one quart, it must be demonstrated that this greater amount can be safely contained or drained overboard.

(6) There must be means to guard against inadvertent operation of each shutoff means, and to make it possible for the crew to reopen the shutoff means in flight after it has been closed.

(b) Turbine engine installations need not have an engine oil system shutoff if—

(1) The oil tank is integral with, or mounted on, the engine; and

(2) All oil system components external to the engine are fireproof or located in areas not subject to engine fire conditions.

(c) Power operated valves must have means to indicate to the flight crew when the valve has reached the selected position and must be designed so that the valve will not move from the selected position under vibration conditions likely to exist at the valve location.

[Doc. No. 4080, 29 FR 17955, Dec. 18, 1964, as amended by Amdt. 23-7, 34 FR 13096, Aug. 13, 1969; Amdt. 23-14, 38 FR 31823, Nov. 19, 1973; Amdt. 23-29, 49 FR 6847, Feb. 23, 1984; Amdt. 23-43, 58 FR 18975, Apr. 9, 1993]

**§ 23.1191 Firewalls.**

(a) Each engine, auxiliary power unit, fuel burning heater, and other combustion equipment, must be isolated from the rest of the airplane by firewalls, shrouds, or equivalent means.

(b) Each firewall or shroud must be constructed so that no hazardous quantity of liquid, gas, or flame can pass from the compartment created by the firewall or shroud to other parts of the airplane.

(c) Each opening in the firewall or shroud must be sealed with close fitting, fireproof grommets, bushings, or firewall fittings.

(d) [Reserved]

(e) Each firewall and shroud must be fireproof and protected against corrosion.

(f) Compliance with the criteria for fireproof materials or components must be shown as follows: